

# Anatomy

Faculty of Medicine - JU2017

☒ Sheet

☐ Slides

Number

7

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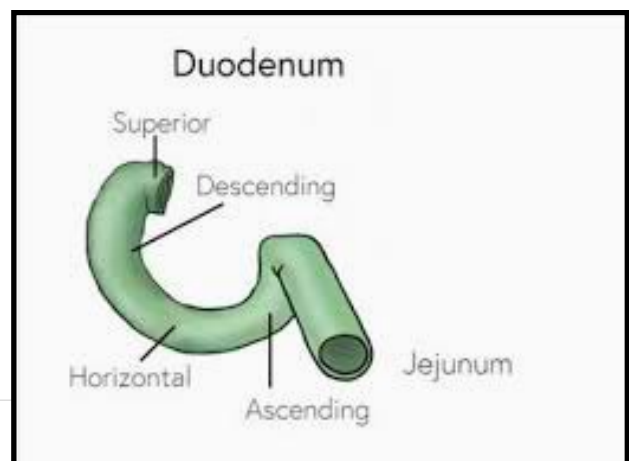
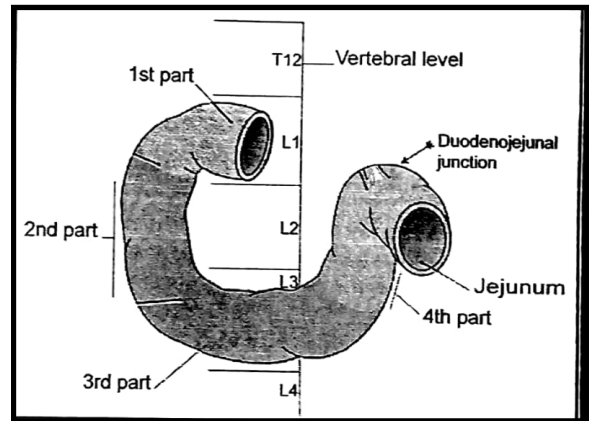
Doctor

**Mahir Hadidi**

# ABDOMEN - GI

## Duodenum

- Notice the shape of the duodenum, it looks like **capital "G"** shape tube which **extends** from the pyloroduodenal junction to the duodenojejunal junction.
- It is 10 inches long.
- It surrounds the head of pancreas as it is located in both epigastric region & umbilical region.
- Also, the duodenum is located behind the peritoneum (retro-peritoneal) **except** its beginning and its end ( the 1st inch & the last inch).
- The first inch and the last inch are considered to be **intra-peritoneal**.
- The duodenum is subdivided (as clarified in the picture above) into 4 parts:
  - 1) First part >>> superior part
  - 2) Second part >>> descending or vertical part
  - 3) Third part >>> horizontal part
  - 4) Fourth part >>> ascending part
- Duodenum arterial supply is **proximal** 1/2 from from **celiac A.** & **distal** 1/2 from **SMA**.
- Its venous drainage is **portal vein** which is formed behind the neck of pancreas by the **union** of **superior mesenteric vein** & **splenic vein**.
- Remember that each part of them has its own features and characteristics.

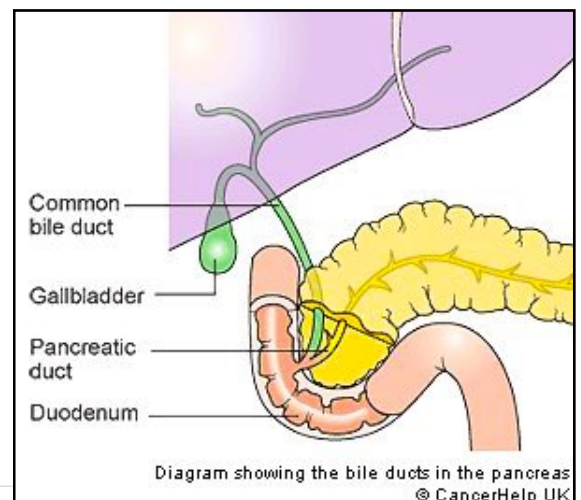


### The 1st part of the Duodenum (superior part) :

- It is **2 inches** long and as the time (as mention above) **the first inch is intra-peritoneal** and the **second inch is retro-peritoneal**.
- It is located at the level of **L1** and it faces upward backward towards the liver as the gallbladder (المرارة) is found under the liver and on the right side of the abdomen.
- It is the very first part of the duodenum and is slightly dilated.
- when the stomach eject its components, they hit and face the first **angle** of the duodenum. Consequently, this site is commonly related to **duodenal ulcer**.
- The first part of the duodenum is mobile, and connected to the liver by the hepatoduodenal ligament of the lesser omentum. (additional information)
- The first part of the duodenum ends at the corner, the superior duodenal flexure. (additional information)

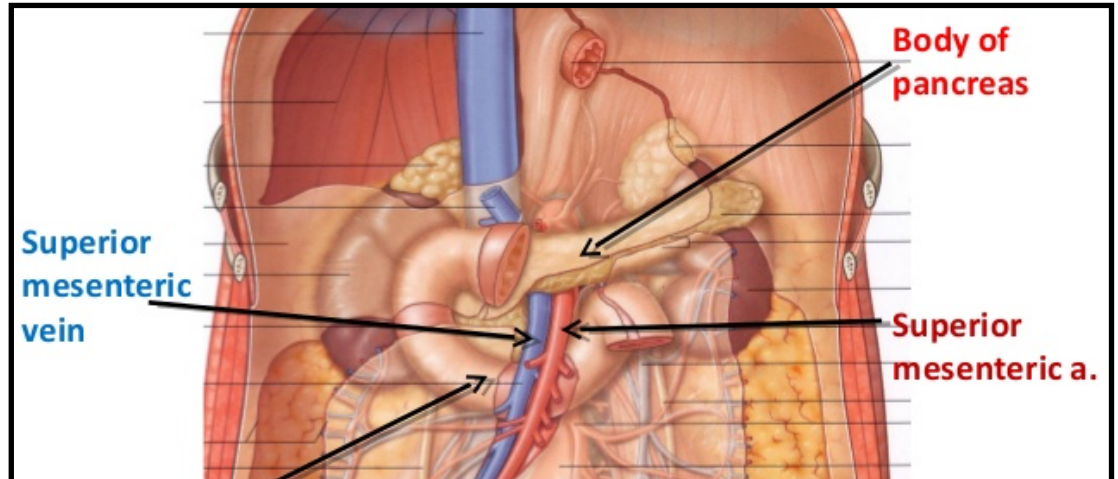
### The 2nd part of the Duodenum (descending part) :

- It is **3 inches** long and it is **retro-peritoneal**.
- It is located on the **right side of L1 - L2 - L3**.
- This part receives the common bile duct on the medial side as well as the pancreatic duct.
- Thus, it can be said that the three sources of nutritions (carbohydrates, fats & proteins) are digested in this area.
- Also, the carbohydrates are digested through saliva and gastric juice, while the pancreas digests proteins and the bile is secreted from the liver to digest fats.
- It is related medially to the head pancreas.
- The site of entrance of common bile duct is the site of the union of Foregut and Midgut. Maning the arterial supply of the 1/2 upper part is celiac artery and the 1/2 lower part is superior mesenteric artery.



### The 3rd part of the Duodenum (horizontal or transverse part) :

- It is **3 inches** long and **retro-peritoneal**.
- It crosses the level of **L3** vertebra.
- Both superior mesenteric artery and superior mesenteric vein cross the 3rd part of the duodenum.



\* Note: The doctor said he would **NOT** mention the inferior relations of the 3rd part of the duodenum and, therefore, he did NOT mention them in the record.

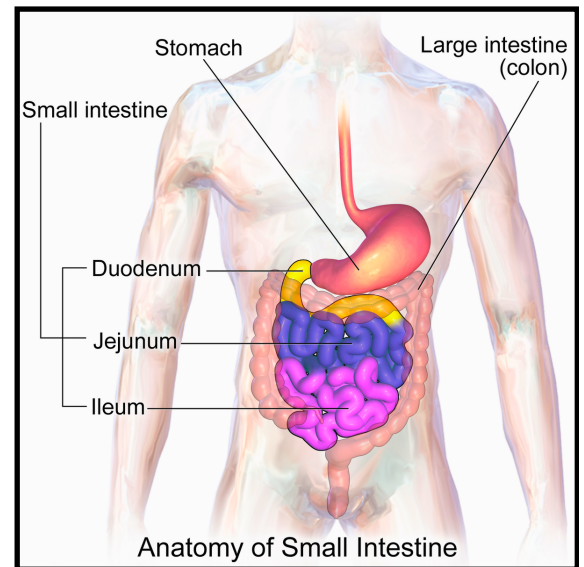
### The 4th part of the Duodenum (ascending part) :

- It is **2 inches** long. (Like the 1st part of the duodenum).
- The **proximal** inch is **retro-peritoneal** & the **distal** inch is **intra-peritoneal**. **WHY?** to allow a free connected mobility and movement with stomach and small intestine.
- It is located on the left side of **L2** and **L3**.
- This part will continue as jejunum.
- The arterial supply of this part is **superior** mesenteric artery.

\* Note: it was mentioned in lecture (record) that the duodenal folds are present to increase the functional surface area, and the (**plicae circulares**) are circular folds of mucosa & submucosa as they begin from the 2nd part of the duodenum.

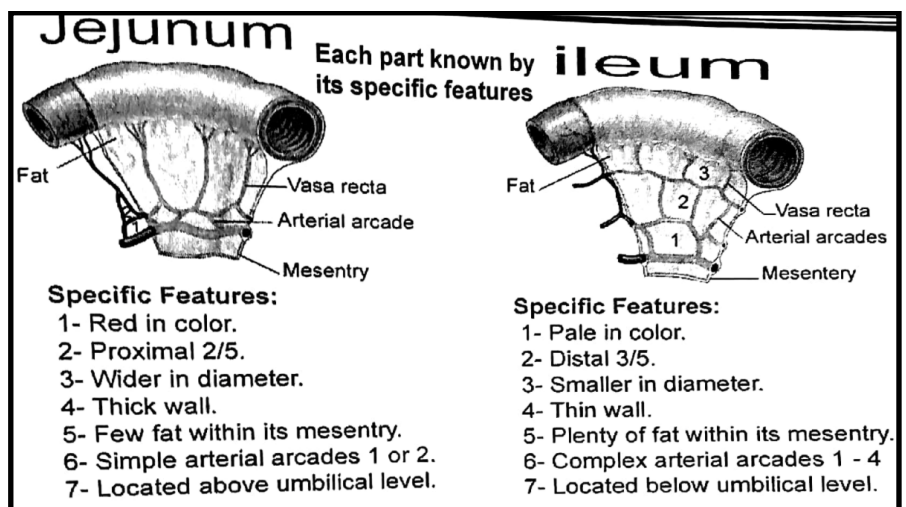
# The small intestine

- It is an **intra-peritoneal** tube.
- It is completely inverted.
- It is anchored (**and not connected**) to the **posterior** abdominal wall by mesentry.
- It extends from the duodenojejunal junction at left side to ileocecal junction at right side. (cecum = الأعور).
- Its length is like the epididymis (البربخ) about 6m long.
- The small intestine is further divided into 2 parts >>> the **proximal** part is called **jejunum** and the **distal** part is called **ileum**.
- The **jejunum** represents **two fifth (proximally)** of the 6 meters of the small intestine and the distal part (**ileum**) represents the other **three fifth (distally)** of the 6 meters of the small intestine.



- **Note:** the doctor mentioned that when we surgically open the abdomen to examine the small intestine, we can NOT distinguish separation point between jejunum and ileum.

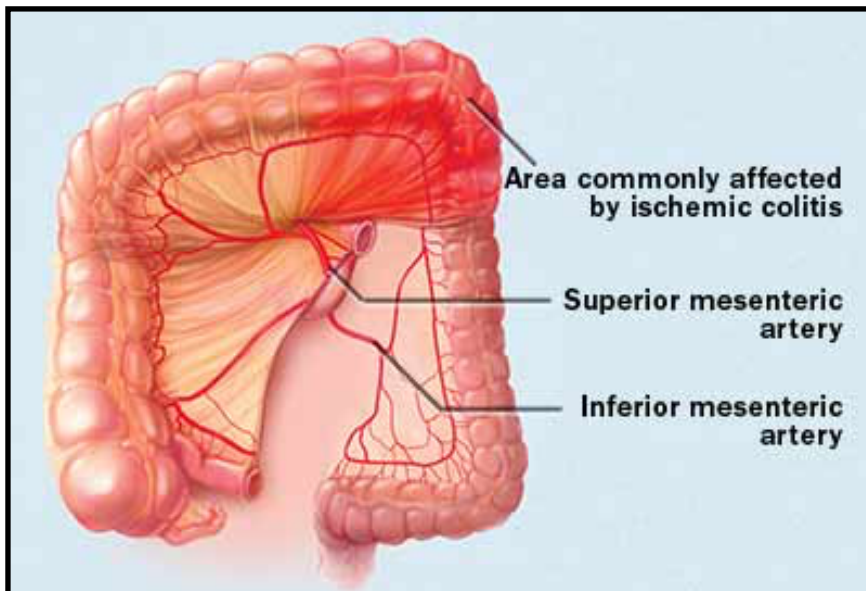
- **Jejunum** is almost always **red** in colour because it is a site of high absorption.
- The **jejunum** has a **smaller diameter** compared to the ileum.
- **jejunum** is **thicker** and **more vascular** than ileum because it has large (plicae circulares) and the microvilli for absorption.
- **The small intestine is located around the umbilicus & the tail from small intestine is referred to the area around umbilicus by nerve number T10.**





**NOTE: Intestinal ischemia was also mentioned in the lecture (record) as a medical case. Here is a definition with a picture explaining it.**

**Intestinal ischemia:** is a serious condition that can cause pain and make it difficult for your intestines to work. In severe cases, loss of blood flow to the intestines can damage intestinal tissue and lead to **death**.



**NOTE: dear students, in case something is unclear or even for further check, please refer to anatomy record 20 from the records list on <http://doctor2017.jumedicine.com> as well as lecture 18 slides.**